Article

Strategies for social and cultural inclusion on development and natural resource management

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In this paper, we present some strategies to improve community work that resulted from 24 small projects in 14 communities distributed through 7 States of Southeast Mexico. The proposal recovers views and opinions of local populations about technical and social factors that shape community action. We obtained people's input through a series of participatory evaluation workshops carried out during 10 consecutive years by a non-governmental organization called "Programa de Acción Forestal Tropical A.C". Findings allow us to propose four different strategies: 1) the reinforcement of self-sufficient development; 2) the enhancement and rescue of traditional and conventional capitals for social and rural reconstruction; 3) the application of the self-development process, and; 4) the use of local indicators as a strategy to follow up and monitor successful cases for resource management. These strategies involve a process of evaluation to have a more sensible assessment of local natural resource management and to improve the basis in social and participatory learning. They also provide some tools for building resilience and sustainability to develop self-sufficient projects.

Key words: Development, resource management, social capital, sustainability.

INTRODUCTION

At the end of the last century, conservation of natural re-sources scholars included social and cultural aspects as essential factors for natural resource management (Toledo, 1991; Berkes and Folke, 1998; Berkes, 2004). Nevertheless, all these proposals assume a set of condi-tions that are not always in place to achieve this approach. Then, the purpose of this paper is to point out methodological strategies to facilitate the inclusion of social and cultural dimensions in the management of natural resources. The conditions that we are referring to are social cohesion, solidarity and strong knowledge of the environment, which are the roots for community work. Nowadays, in the Mexican context, these previous condi-tions are lost in almost all of the local populations or communities. Furthermore, it is necessary to rescue and to rebuild them from traditional thinking, to motivate participative community processes. These conditions are at least necessary in rural Mexico, as a solid working base to reach resilience and sustainable management of natural resources. Moreover, working with rural communi-

nities also implies social learning processes that would help local populations to be proactive and use their local knowledge. In other words, strategies for natural resource management need to see individuals as creative persons, capable of building and carrying out new ways to reach sustainability and development.

Many participative methodologies assume that commu-nities already have the disposition to carry out projects. On one hand, this assumption is partially true in the Mexi-can context, because traditional and ancient cultures fos-tered community wellbeing and social integration. On the other hand, however, the indiscriminate trend of the so-called development and the lack of effective Mexican polices on rural issues have destroyed communities' social fabric. Then, the real dilemma occurs when a cur-rent local population has had social cohesion and a strong environmental knowledge, but at present, it is facing environmental issues and social constraints. Therefore, it is pertinent to ask, if it is possible to rescue a community social cohesion and environmental knowledge from their collective memory? How could we access this data or contribute to rebuild it?

Using these inquiries as a starting point, we discuss four metrological strategies to improve social and parti-

cipative learning in rural communities. We also discuss some tools for building resilience and sustainability under Mexican conditions. In our experience, the application of these strategies allowed us the improvement of social, cultural and biological aspects while working with local populations and rescuing some aspects of traditional knowledge.

The methodological strategies were born of the work developed by the non-governmental organization called "Programa de Acción Forestal Tropical" (PROAFT) through ten years of work in 24 projects, in 14 communities distributed throughout 7 states of Southern Mexico (Del Amo, 2001). The entire experience was non-conventional and anthropological in nature. It implied an action program with projects and activities designed according to community members' needs and a technical team. We used a converging-intervention model to achieve a self-development community process and a shared responsibility with the resource users (Gómezjara, 2002).Our proposal has elements of adaptive planning and participatory consensual planning (Briassoulis, 1989) but it was adapted to the Mexican indigenous groups. To do community work, we need to consider the cultural and the educational background of the individuals and the groups involved in the projects. However, it is clear that biases exist and if they cannot be avoided, we can correct them by observing carefully observations, recognizing local expectations, and by valuing existing empirical knowledge.

Two of the most advanced projects in the world, about community rural work, are carried out in Shimoga, India by Krishi Prayoga Pariwara (Shenoy et al., 2003) and in the Andine zone in Latinoamerica (Haverkot et al., 2003). These projects show an intimate relation between social learning and endogen development. In both cases social cohesion, human and natural resources; as well as, the role of the spiritual world are important elements in making decisions for action. Thus, in this paper we considered the endogenous projects as promoters for self-development.

This renewed type of development considers traditional knowledge as key stone and encourages "in situ" practices through the *campesino* experiences (Haverkot et al., 2003). Nevertheless, it is important to avoid participative processes where there are no clear rules or the rules are not enough flexible to accommodate different situations (Ostrom, 1990) and where the quality of traditional knowledge is not necessarily useful for the current management conditions.

The problems of global poverty, ecological destruction and loss of biodiversity need more innovative, ecological and cultural solutions (Del Amo, 2001). The so-called new conservation approaches (Brown, 2003) and the old experiences of many human groups in management practices throughout history, indicate that cultural identity and local initiatives are main factors to achieve sustain-able rural development as a dynamic process (Rist, 2002; Haverkot et al., 2003). Nowadays, the different types of

damages suffered in tropical areas reflect a challenging course of action to conserve and restore them. These impacts involve resilience and sustainability (Berkes and Folke, 1998). Therefore, a new response to management implies a bio-cultural dimension, meaning that social and ecological aspects should be considered to apply actions and to build projects. For example, to obtain resilience and sustainable productive systems outside of the natural protected systems, it is necessary to establish strategies that link conservation with culture and other social aspects to change Mexican policies and attain democratic goals.

METHODOLOGY

During a series of ten annual evaluation workshops carried out with local populations of southeast Mexico, we obtained an important experience of working with community projects. Each one of these annual meetings had its own agenda and comprised different subjects such as territorial landscape planning, environmental tendencies in the region, sustainability, agroforestry systems, and the use of firewood. In all of the workshops, people discussed special topics like gender conditions, the value of responsibility and their citizenship, administration of economic resources, organization, and planning among other topics. One of the main tasks in all meetings was to play interactive-games, which helped people to achieve self-esteem and consciousness of human-nature relationships in daily life and resource management. These annual events worked as horizontal and social learning spaces in which each participant gained knowledge to apply in his/her communities. In these events, more than 300 participants were trained and their enthusiasm, opinions and proposals help to build the strategies of this paper.

Because of the experiences with the projects and the workshops, we propose four different strategies to improve community action. These strategies are: 1) the reinforcement of self-sufficient development; 2) the enhancement and rescue of traditional and conventional capitals for social and rural reconstruction; 3) the application of the self-development process, and; 4) the use of local indicators, to follow up and monitor successful cases for resource management. These strategies enable a more sensible assessment of local natural resource management by improving the basis of participative learning and provide some tools for building resilience and sustainability. Additionally, we have developed some concepts that help to rescue traditional knowledge.

The reinforcement of self-sufficient development

The reinforcement of self-sufficient development in local populations has to occur through gradual changes to attain sustainability (Table 1). The objective is to achieve self-development through social involvement of the local population. Once this strategy is gradually established, we can identify and classify by hierarchy the problems to be solved. Other important activities are gathering useful information to design new actions, deciding on conflicts, and finally implementing actions to establish sustainable resource management alternatives.

Table 1 comprises more than 14 characteristics, which are gradual steps toward self-development. Organization is an example of what has to change in a community project, going from a pyramidal to a horizontal and/or circular structure. This change will stimulate co-responsibility and natural leadership. Therefore, all members have the same hierarchy in an egalitarian way and receive the same benefits. As we can notice, transformation of one characteristic causes a "domino effect" in the rest. The characte-

Table 1. Gradual changes to attain sustainability thorough the reinforcement of self-development.

Characteristics	Gradual steps towards self-development
Management and Organization Structure	Management structure changes from pyramidal to horizontal or circular. There is a rotation of member's places and promotion of committees with permanent functions and responsibilities. When management and consultant committees are broad, new leadership is motivated.
Hierarchy	Hierarchy is egalitarian and all group members perform similar tasks.
Division of functions and responsibilities	Group responsibilities rotate and are not permanent. This allows that all members have equal experiences in organization and management.
Decision Making	Decisions are collective through direct vote, consensus or some other mechanisms previously agreed.
Conflict Resolution	Problems are open to discussion and therefore resolutions are nor unilateral.
Information	Information is relevant, transparent, and periodical and all group members can access it
Reports and finance evaluations	There are periodical written reports in fixed periods, reviewed and approved by the assembly. Members discuss monthly finance reports and use them for future reference.
Rules	Members agree with all the rules and sanctions. Rules are not applied indistinctly.
External Aid	The group works, governs and regulates by itself and independently. There are collective discussions about needs. External opinions for decision-making are considered, but final decisions are part of the internal process, that should not depend on external community members.
Participation	Participation is not conditioned to specific benefits or privileges. There is a co-responsible commitment among community members.
Self-knowledge	Self-knowledge allows valuing potential skills and capabilities and not hiding or ignoring them.
Auto-evaluation	Auto-evaluation conduces to self-critical development to self-esteem and trust in the group convictions and decision-making.
Processes	There is and ownership of diagnosis, research, planning and evaluation processes for independence in decision-making and external subordination.
Leadership and empowerment	Collective leadership allows people's growth. Formal leaders understand the role as work facilitators and group motivators. They make alliances with natural leaders and use their power for collective proposals and community empowerment
Capabilities	The local community is able to detect their needs and plan for training. Training is accord to community projects and needs, and it is not used to justify individual interests.
Funds and resources	Internal mechanisms are created to generate financial resources and to manage small funds for projects and emergencies. It is expected that groups will achieve financial independence of external founding at a medium term.
Recognition of spiritual features	Recovery of the historical knowledge and oral history to choose the type of organization and the kind of development for their future.

ristics that we detected as important for self-development are: management and organization; structure; hierarchy; division of functions and responsibilities; decision making and conflict resolution; information; reports and finance evaluations; rules; external aid participation; self-knowledge; auto-evaluation; processes; leadership and empowerment; capabilities; funds and resources. Therefore, gradual changes in democracy, equality, and transparency occur at the top of local, regional and national levels. Local rules and collective discussion, self-knowledge, self-criticism and decisions about the necessities of the present are essential in the local level. The development of internal mechanisms for financial support, individuals' abilities and capacities are changes that must be reinforced at the individual level. The development of these changes guarantees reaching management objectives of resilience and sustainability and promote feedback.

Enhancement and rescue of traditional and conventional capitals for social and rural reconstruction

In recent years, contributions about the concept of capital have

discussed its variants. In our opinion, there are four main types of capitals for community blossom or reconstruction: capital of natural resources, human capital, social capital and cultural capital (Table 2). We used the term "blossom" as identification with the indigenous thinking, which means fertility or prodigality and not economical development. For us, social capital is also a key stone for community projects and in the case of Mexico, it is important to consider the richness of the indigenous conception world as part of social capital.

The capital of natural resources comprises the entire basis for life support such as water, soil, air and biodiversity. However, in this paper, we emphasize the recovering of uses, practices, and traditional management simulating natural ecosystems. The human capital is the individual and group potential skills to achieve determined goals. Social capital is the confidence or trust among community members expressed in their relationships at the intra-group and inter-group levels. Social capital gives cohesion to the community and to the group activities, leading to social co-responsibility. Social capital defined by Coleman (1988), has three elements: confidence, information flood, and system of rules and sanctions. To this definition, we add that in rural communities it is important to have access to precise information to built trust, reciprocity, networks

Table 2. Enhancing capitals for rural reconstruction. (Capital as blooming)

Natural Resource Capital: Ecosystems with high biodiversity
▪ Recovering traditional use of resources
▪ Promoting new potentialities
▪ Promoting diversification of management practices
Human Capital: Recovering confidence as a base for social development
▪ Inter-groups
▪ Intra-groups
▪ Individual
Social Capital: Recovering social co-responsibility
▪ Organization
o Cohesion
Cultural Capital: Recovering traditional resource management
▪ Customs and traditions
▪ Recovering traditional practices and management systems
o Recovering community oral history

and therefore have collective action (Flora et al., 1997; Robinson and Flora, 2003).

Furthermore, the system of rules and sanctions have to be established by the community members, who, as Coleman (1988) states, give a public character and emotional rewards to social capital. Furthermore, as Robinson et al. (2001) explain that social capital implies "sympathy toward another person or group that may be produced a potential benefit, advantage and preferential treament", under a Mexican context, this reciprocity is part of traditional knowledge. Therefore, we can take advantage on the situation to promote social learning. This means that emotional reciprocity can be used to influence the way people organize and plan for resource management.

Cultural capital is the central part of ethnic richness, and the cultural dimension of sustainable development (Rist, 2002). It is constructed and recovered by the valorization of uses, customs and practices related to natural resources management, although in many countries this richness has been destroyed and underappreciated. Unfortunately, in Mexico, folklore is the only way to accept ethnicity. There is no real appreciation of our own cultural roots, although many authors such as Toledo (2003) and Gomez-Pompa and Klaus (1992) have described the relation between cultural aspects and the conservation of biodiversity, as well as, the importance of ethnic groups in the recuperation of native germoplasm. Finally, due to the erosion of cultural aspects and to the break up of social networks, we require cultural reinforcement programs for recovering historical and traditional aspects, as a main tool to promote learning and acceptance of our plurality. The inclusion of cultural issues for solving problems provides new tools for recognizing different visions and ways of thinking. In this sense, our goal is to see the world in the eye of the other's (Fitchen, 1990). Intercultural communication helps us to eliminate the dominance of one group over another. Through this dialogue, we enrich our own opinions, and therefore we are able to explore real needs (Kersten, 1997). This approach is not only applicable for cultural anthropology, but useful for work with communities in natural resource management as well. Recognizing other ways of approaching reality and problems enables us to advance along the successful sustainability path. Moreover, equality of work conditions between *campesinos* and technicians is a determined factor for effective results (Del Amo y Vergara, 2007).

The combination and application of the above capitals would provide substantial tools for successful community experiences and consequently the attainment of resilience and sustainability. These tools include permanent participation, cultural inter-communication, cohesion, plurality, and diversity. Certainly, using these capitals in Latin America is one answer to reach citizen equality and to atenuate globalization effects. This is true especially for rural areas where there is a direct relationship among poverty, soil erosion and deforestation, with a strong decrease in local food production (Rist, 2002). In addition, the social network between groups has an important role. Therefore, the encouragement of *campesino* alternatives and recognition of their capitals are the only ways to address external dynamics for resource management and not lose the capacity for food production.

The application of the self- development process

In Table 3, we point out that the individual; group and social level form the self-development process. It is the milestone to build sustainability through social learning, and the challenge is to obtain material and psychosocial changes as results. The material change relates to conservation and management of biotic results and the psychosocial results relate to democracy, equality and governance. The main result of the development process is to increase production of resource management, individual potential and social cohesion. In the special case of indigenous people, cohesion is the most important socio-emotional good. The self-development process at the individual level would recover cultural identity and increase abilities and knowledge for self-esteem and innovation. The self-development process at the group level through cohesion would achieve organization and promote solidarity and participation. In addition, finally the self-development process at the collective level through social responsibility would support egalitarian relationships and improve resource management. The elements that favor self-development at the individual, group, and collective levels are the deep relations between objectives and strategies and the increment of people's productive potential as an important part of social capital (Del Amo, 2001). As we can see in Table 3, each level comprises several objectives, approaches, materials, and psychosocial results. The more feasible way to reach a self-development process is combining social and ecological elements for building resilience and

Table 3. Self development process: levels, objectives, approaches and results

LEVEL	OBJETIVES	APPROACH	RESULTS	
			MATERIAL	PSICOSOCIAL
Individual	Revalorization of cultural identity and development of individual capabilities	Re-establishment and promotion of the relationship between nature and humans, considering indigenous knowledge. And analysis of capabilities and potentialities	Maintenance of the natural resource basis to ensure main needs such as employment, income, access to credits and savings.	Promotion of self-esteem, identity, place attachment, knowledge, skills, credibility, innovation
Group	Promote group cohesion	Organization and use of technical procedures and tools. Cultural reinforcement, use of traditional/local knowledge, integration of gender task and valorization of women's work	-Biodiversity management and conservation. -Landscape planning of natural resources. -Finance lobbing. -Establishment of relationships with other external groups. - Increment of women as main actors.	Promotion of participation, solidarity, self-sufficiency, democracy.
Collective	Social responsibility	Integration of ethic and social dimensions to resource management activities. And, access to rights, obligations to prevent risk and improve resource management	- Political norms - Internal group rules - Municipal regulations	Promotion of values, new approaches for community action, egalitarian relationships

and sustainability.

Local indicators

The last strategy that we discuss is the use of local indicators to follow up and monitor successful cases for resource management. Although we usually use indicators to evaluate final goals, in this case they provide feedback to correct actions that have long-term impacts for sustainability. Local indicators are important tools to identify social frameworks and systematize useful information for community work, prevent risks and obstacles, and being more efficient in a specific intervention. Therefore, indicators must be specific and consider quantitative and qualitative issues.

In Table 4, we propose a group of seven basic qualitative indicators to measure actions and local population participation. These concrete measures represent the local populations' patterns of self-development towards sustainability, that we have identified through our own experiences. These measures are also important tools to facilitate social learning. Indicators are expressed in a gradient scale or as a gradual qualitative process. In a community project, we need to discuss the scale type and the indicators with the local population. For instance, the degree of recuperation and appropriation of traditional knowledge can be evaluated as high, medium, and low. In addition, we have observed that qualitative measures can help people to participate more actively and that decision-making based on local information helps to self-development processes.

Conclusions

The application of strategies to facilitate the inclusion of

social and cultural dimensions in the management of natural resources is an intensive effort that requires combining current scientific and traditional knowledge at the local and regional levels in order to maintain a project of "useful sustainability." We have pointed out that development in rural communities is achieved when we include as main issues community structure, psychosocial characterristics, non-formal education and natural resource management. Using all of these elements, we build an integral approach to reach sustainability. In addition, social learning is a practical and inclusive process, where actions have to be related to daily life situations in the local context, and that comprises participation of *campesinos*, technicians and researchers (Del Amo, 2001). Our proposal reflects the spiritual word through the cultural capital, in which the dialogue and plurality are also improved. Dialogue and plurality are a behavior code for the advisor research or technical issues. The power and the organization are a conquest of local populations (Del Amo y Vergara, 2007).

For building sustainable rural development, we need to create natural resource projects based not only in local needs, but also in social learning. We need to proportionate new spaces of reflection among members of local population, researches and technicians and allow a synergic action between traditional and scientific knowledge (Haverkot et al., 2002). The four methodological

Table 4. Qualitative indicators of follow up and monitoring

QUALITATIVE INDICATORS	ACTIONS MEASURABLE
Consolidation of a participatory process	- Numbers of individuals of diverse groups including women, old people and children. - Community landscape planning that take into account community needs.
Cultural reinforcement	- Creation of historical archives with local and regional data. - Recuperation of local history through oral traditions - Recuperation and adaptation of traditional ecological knowledge and other alternative resource management practices.
Decision making processes and results	- Community groups make decisions based on local information obtained in their own experiences. - Ownership of landscape planning and utilization of geographical information systems. - Communication and follow up of coordinated activities to decide about a resource management issues.
Economic and environmental local viability	- Projects oriented to increase local markets and aggregate value of raw materials. - Inclusion of household economies in resource management projects with women as main actors - Endorsement of projects where maintaining biodiversity, water and soils are primary goals.
Training and research reinforcement	- Number of local members trained as technicians - Didactic material ad hoc to community needs. - Interdisciplinary participation in research projects.
Replication and adaptation of local successful projects to other regions	- Ownership of local management models by different communities. - Coordination of landscape use and efficient production for local and regional replication.
Community well being and environmental improvement	- Development of natural resource management activities in the community to protect resources: wildlife reproduction, use of agroforestry and alternative systems, conservation of native germplasm. - Self-determination of community local projects. - Community well being and environment improvement caused by project

strategies intend to give the tools for learning, listening and understanding (Rist, 2002), as well as, providing the right interpretations of local capacities and abilities. These strategies acknowledge the importance of traditional beliefs and new technology; and the need of enforcing ethical principles for sustainable use of natural resources. Combining different approaches can help to build better public policies and environmentally friendly technology.

A main issue for attaining sustainability is to have tools to achieve it. Therefore, the main challenge is to design learning procedures and to carry out projects that embrace people, long-term actions and ethical principles for a better future. Therefore, we believe that the methodological strategies that we propose could help to create

practical alternatives to establish social learning spaces for resource management. One important fact that we need to confront is our permanent shyness for solving environmental problems. The costs created by deforestation, erosion, biodiversity loss, water and air pollution are extremely high. If we want to achieve sustainability, meaning maintenance of human beings and natural resources, we have to start a real change now. Men and women expressing and creating diverse ways of thinking and acting are the main axes for changing paths.

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